

Atomic and Nuclear Physics  
AP Physics

1. Atomic:

- a. Wave-particle duality: experiments that determined principle.
- b. Blackbody radiation.
- c. Emission and absorption spectra.
- d. Photons and the photoelectric effect.
- e. Momentum of a photon.
- f. de Broglie wavelengths.
- g. Equations determining energy, wavelength, frequency, and momentum for particles with mass and photons.

2. Nuclear structure:

- a. Rutherford scattering and Bohr model.
- b. Nucleons and letters denoting each kind.
- c. Forces: Strong nuclear and weak nuclear.
- d. Radioactivity:
  - i. Alpha.
  - ii. Beta.
  - iii. Gamma.
  - iv. How each are created.
  - v. Energy of each.
  - vi. Decay of products of radioactive material.
  - vii. Be able to complete decay reactions based on alpha, beta-plus, and beta-minus types.
- e. Induced nuclear reactions.
- f. Fission.
- g. Fusion.